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ABSTRACT

Maternal and infant behaviors of 30 American and 52 Japanese mother/infant dyads from middle-class homes were compared. The major differences in caretaker behavior were (1) the Japanese mothers spent more time with or in the presence of their babies than did the American mothers, and (2) the American mothers were more active in positioning the bodies of their infants. Infant behaviors between the two cultures were strikingly similiar. Significant differences were found in sucking behavior, with the American babies displaying more sucking behavior than the Japanese babies. Male babies of both cultures were awake more and received more rocking than did females. Several culture by sex interactions were found. Japanese males displayed significantly higher unhappy and total vocal behavior than Japanese females, but the American males displayed significantly lower total vocal behavior than the American females. Comparisons were made with findings from a study conducted in 1969. The findings highlight the importance of cultural context in investigating early behaviors. (Author/RH)

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Maternal and Infant Behavior in Japan and America: A Partial Replication

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Abstract

Maternal and infant behaviors were compared for 30 American and 52 Japanese mother-infant dyads from middle-class homes in Japan and America. The major differences in caretaker behavior were (1) the Japanese mother spent more time being with or in the presence of her baby than the American mother, and (2) the American mother was more active in positioning the body of the infant. Infant behaviors between the two cultures were strikingly similar. Significant differences were found in sucking behavior with the American babies displaying more than the Japanese babies. Across cultures male babies were awake more and received more rocking. Several culture by sex interactions were found. Japanese males displayed significantly higher unhappy vocal and total vocal than Japanese females, but the American males displayed significantly lower total vocal behavior than the American females. Comparisons were made with findings from a study conducted in 1969. The findings highlight the importance of cultural context in investigating early behaviors.

Maternal and Infant Behavior in Japan and America: A Partial Replication

More than a decade has passed since Caudill and Weinstein (1969) compared the behavior of mothers and 3- to 4-month-old infants in middle-class homes in Japan and America and found that American mothers did more positioning of the infant's body, lively chatting to their babies and had a generally higher level of vocalization. American mothers responded with a greater amount of happy vocalization and gross motor activity than the Japanese mothers. On the other hand, the Japanese mothers did more vocal lulling, carrying, and rocking of their babies, and as a result the Japanese babies were more physically passive. Caudill and Weinstein concluded that because of the different styles of care-taking in the two countries, it appears that by 3 to 4 months of age the infants have already learned (or have been conditioned) to behave in culturally distinctive ways and that this has happened out of awareness and well before the development of language. Freedman and his colleagues (1979) through investigations of newborns from several ethnic groups including Japanese and Americans found striking differences in behavior as early as birth. Freedman suggests that these differences are biocultural.

Since the often cited study by Caudill and Weinstein (1969), many changes have taken place in Japan and the U.S.A. Japan has become an industrialized country in the world, the only major industrialized country that is not of Western cultural background. Contacts between the USA and Japan have increased in number and significance. Japan is one of America's most important partners in international trade. Reischauer (1978) reports that the USA is the country most frequently visited by Japanese and Americans are the most frequent visitors to Japan. Both countries have experienced rapid economic development, inflation, overpopulation in urban areas, a decrease in number of children per

family, and an increase in women working outside the home (U.S. Bureau of the Census, 1979; Japanese Ministry of Health and Welfare, 1979). Wagatsuma (1977) identifies four factors as having a significant impact on Japanese families: postwar changes in values, the increase in the number of nuclear families, crowded housing conditions and the increasing influence of the media as a source of information. Logically, changes in patterns of interactions between mothers and their infants could be expected. For years, the mother-infant relationship in Japan has been described as being especially close (Beardsley et al., 1959; Vogel and Vogel, 1961; Vogel, 1967). In the U.S.A. in recent years, the central theme in infancy has focused on attachment and parent-infant bonding with a massive amount of research (Ainsworth, 1979; Klaus and Kennell, 1982). Hence, greater similarity might be expected between the behavior of American and Japanese mothers and their infants. Additionally, it would be plausible to expect greater similarity between the two groups as the Japanese mother is exposed to and influenced by Western societies (Caudill and Frost, 1975; Smith and Schooler, 1978). The purpose of the present study was to replicate in part the earlier work of Caudill and Weinstein utilizing the same procedures and similar populations drawn from Japan and America.

Method

Subjects. The subjects were 30 3- to 4-month-old Caucasian healthy, first-born infants and their mothers and 52 3- to 4-month-old Japanese healthy, first-born infants and their mothers. The subjects were recruited primarily through pediatricians in Tokyo, Japan and a large southwestern city in Texas. Five of the families contacted (three in Japan and two in America) were unable to serve as subjects due to family circumstances (i.e. plans to move out of town). The infants were about equally divided by sex and living in urban,

intact families. All children came from middle-class homes based on occupation and education of the father and education of the mother. Japanese fathers were mainly employees of industrial companies; American fathers were in primarily professional or managerial positions. In the Japanese sample six mothers and in the American sample seven mothers were employed outside of the home. Fifty of the 52 Japanese fathers and mothers had completed high school and 27 fathers and 18 mothers had completed college. In the American sample all had completed high school and 20 fathers and 20 mothers had completed college.

All but five of the Japanese families and three of the American families were composed of mother, father and infant. Of the Japanese families, one had a grandfather, a grandmother and an uncle living with them, two families each had both a grandmother and a grandfather in the home and two families had one grandparent living with them. One of the American families had a grandmother and an aunt living with them and two had one other relative living in the home.

Measures. Naturalistic observations were made in the homes using a time-sampling technique with the same categories described elsewhere (Caudill & Weinstein, 1969), which had been adapted from that originally developed by Rheingold (1960). As was the case in the Caudill and Weinstein study, observations were made when the infants were between the third and fourth month of age. The observations were made in each home on two consecutive days. After a brief period of getting acquainted, the mother was asked to go about her normal daily routine while the observer observed the baby and caretaker behavior. In general, on the first day the observations were made in the morning, and on the next day during the afternoon lasting about three to four hours each day. Observations were not made on days when the mother or baby was ill. Observations were made every 15 seconds over a 10-minute period in terms of a predetermined set of categories concerning the behavior of the infant and the

behavior of the mother (Table 1 gives the items), resulting in a sheet containing 40 equally spaced observations. Five-minute breaks were made between observation periods and ten observation sheets were completed on each of the two days, giving a total of 800 observations for each case.

Before beginning the collection of data, the senior author, a native Japanese, came to America and was trained along with an American observer in the observational method used in the study. After pilot work and after reliability was established, the American and Japanese observers both made the observations independently at the same time in each of the American homes. Following the collection of data in America, the Japanese observer returned to Japan and trained two Japanese observers in the observational method to assist in the collection of data on the Japanese families. To check the reliability of the observations the amount of observer-agreement for each item was calculated. A percentage of agreement was obtained by dividing the number of agreements by the combined number of agreements and disagreements. An agreement was a tally identical in both records; that is, both observers agreed not only in identifying the item but also in the timing of the item; agreement on the absence of an activity was not counted as an agreement. Interobserver reliability between the American and Japanese observer prior to the observations ranged from .72 to .98 (M=.89). Reliability was checked daily when the data were collected in America and at midpoint of the investigation, observer reliability ranged from .83 to .98 (M=.91). When the data were collected in Japan, an interobserver agreement of 85% was maintained. The senior author was the "constant" observer in the reliability check, being paired with the American observer in America and the Japanese observers in Japan.

Results

The data were analyzed using a 2 (culture) x 2 (sex of child) multivariate analysis of variance. The means of the infant and the caretaker behaviors within each culture and sex are given in Table 1. All scale scores range from zero to 800. The multivariate analysis revealed a main effect of culture, $F(29,50) = 5.18$, $p < .001$. In addition, the Culture by Sex interaction was significant, $F(29,50 = 1.98$, $p < .02$. Univariate least squares analyses of variance were then conducted on each caretaker and infant behavior. The significant univariate main effects for culture and significant Culture by Sex interactions are described below.

Insert Table 1 about here

Caretaker behaviors. A significant difference was seen in the frequency of caretaker presence between the two cultures, $F(1,78) = 19.99$, $p < .001$. The Japanese caretakers were present more often (M = 645.8) than their American counterparts (M = 491.1).

A Culture by Sex interaction was seen on caretaker's changing diapers, $F(1,78) = 7.8$, $p < .007$; American female infants had their diapers changed significantly more often (M = 25.0) than American male infants (M = 14.2), but the Japanese babies did not differ significantly by sex (females: M = 17.36; males: M = 21.27). No main effects on diaper activity were seen by culture. No significant differences were seen on caretakers dressing the infant as a function of culture.

Positioning the baby was highly significantly different by culture, $F(1,78) = 53.56$, $p < .001$. The American caretaker was vastly more active in

positioning the infant (M = 27.47) than the Japanese (M = 9.44). The Culture by Sex interaction was significant, in that, although Japanese infants were not differentially attended to by sex (females: M = 7.53; males: M = 10.55), American girl infants received much more positioning (M = 31.2) than American boys (M = 23.73), $F(1,78) = 4.43$, $p < .041$.

Interestingly, no significant differences were seen either as a function of culture, or culture by sex on the measures of (a) caretaker patting-touching, (b) "other care", (c) playing with infant, (d) kissing, (e) looking at, (f) chatting with, (g) lulling, or (h) talking to the infant.

There was a borderline difference in having the infant in the caretaker's arms, $F(1,78) = 3.57$, $p < .063$. The American caretaker had a higher incidence of this behavior (M = 213.23) than the Japanese (M = 172.94).

Infant behaviors. Although there was no significant main effect for culture on frequency of baby with breast or bottle, there was a significant Culture by Sex interaction, $F(1,78) = 4.23$, $p < .043$. The female infants did show a significant culture difference, with the American girls (M = 87.93) showing a significantly higher incidence of the behavior than the Japanese girls (M = 54.37). The boys, however, were not sigrificantly different (American: M = 62.40; Japanese: M = 67.09).

Sucking behavior was significantly different for the two cultures, $F(1,78) = 5.40$, $p < .023$, with the American babies displaying more of the behavior (M = 129.33) than the Japanese infants (M = 93.10). However, a significant Culture by Sex interaction, $F(1,78) = 8.45$, $p < .005$, indicated that the female babies accounted for the differences, the American girls (M = 164.13) being significantly higher than the Japanese girls (M = 72.95). The boys did not differ significantly from each other (American: M = 94.53; Japanese: M = 104.70).

Although there was no significant culture main effect on baby's unhappy vocal behavior, there was a significant Culture by Sex interaction, $F(1,78) = 9.20$, $p < .003$, indicating that among Japanese infants only, a sex difference was seen, boys ($M = 75.06$) being higher than girls ($M = 41.47$) on unhappy vocal; American boys, however, did not differ significantly from American girls (boys: $M = 53.40$; girls: $M = 64.60$).

No significant differences were seen, however, for happy vocal behavior, although when the two behaviors (unhappy and happy vocal) were combined to give total vocal behavior, a similar pattern resulted as did for unhappy vocal, giving a significant Culture by Sex interaction, $F(1,78) = 12.70$, $p < .001$. The Japanese boys ($M = 126.85$) were significantly higher than the Japanese girls ($M = 85.79$), but the American boys ($M = 81.60$) were significantly lower than the American girls ($M = 104.33$).

No significant differences were seen on (a) the infant looking at the mother, (b) infant activity, (c) infant playing with toys, (d) infant playing with hand, (e) infant playing with other object, nor (f) the totaled playing behavior as a composite variable. Also, no significant differences were seen for the frequency of the baby touching the mother's body.

The analyses of variance of the frequencies of observed caretaker and infant behaviors revealed several interactions of culture and sex of infant. In order to discern patterns of behaviors in these observations, the correlation matrices of infant and caretaker behaviors within each culture and each sex were examined. The patterns described, although reliable within our samples, by no means conclusively delineate cultural or sex differences. They are presented primarily to suggest potential topics for future investigations. All relationships described below are statistically significant at $p<.05$. The Pearson correlations appear in parentheses in the descriptions.

Patterns of infant behaviors. American male infants who were more often awake during the observational sessions were more likely to emit happy vocalizations (.49), be more active (.57), and engage in toy (.46) and object (.48) play. Observations of the infant with the breast or bottle were negatively associated with unhappy vocalizations (-.48). However, these infants observed more frequently with breast or bottle also touched their caretakers more often (.53). Unhappy vocalizations were negatively associated with the infant's looking at his caretaker (-.60), and active infants engaged in object play (.54). These correlations suggest a picture of the awake male American infant as active, happily vocalizing and playing with toys and objects. When the infant is given a breast or bottle, he is less likely to be unhappy vocalizing and is likely to be touching his caretaker. When the male American infant is unhappy, evidenced in vocalizations, he is also less likely to be looking at his caretaker.

The American female infant also was often observed vocalizing happily when awake (.54). Frequency of awake observations was not associated with activity as occurred with American male infants, but rather was related to being observed with the breast or bottle (.48) and negatively associated with sucking fingers or pacifiers (-.45). While male infants frequently engaged in object and toy play when awake, the female American infant was often found engaged in hand play when awake (.66) and this hand play was associated with happy vocalizations (.50) and looking at mother (.54). The more often the female infant engaged in toy play, the less frequently she was observed in unhappy vocalization (-.58). No other behaviors of the female infants were systematically related to unhappy vocalizations. The active female infant, similar to the active male infant, frequently engaged in object play (.58). However, these more active female infants were less likely to touch their mothers (-.45).

The Japanese male infants were similar to their male American counterparts in that the more frequently awake infants also engaged in more object (.39) and toy (.30) play. As found with both male and female American infants, the frequency of awake periods was positively associated with happy vocalizations (.39). For Japanese male infants, frequency of awake periods was related to frequency of observations of the infant with breast or bottle (.32), a pattern also found with female American infants. Unlike American infants, Japanese male infants tended to watch their caretakers when awake (.31). Additionally, frequency of looking at the mother was positively associated with object play (.40). Similar to American infants (both male and female), the active Japanese male infants engaged in object play (.58) and like the American female infants, the more active infants were less likely to touch their mother's body (-.56).

The female Japanese infant looked at her caretaker when awake (.69) as did the male Japanese infant. The happy vocalizations of these female infants, like all infants in the study, were positively associated with frequency of the infant being awake (.50). Similar to the female American infants, the female Japanese infant often engaged in hand play when awake (.62). While periods of being awake were negatively associated with sucking on finger or pacifier in female American infants, the association was positive in female Japanese infants (.44). Additionally, these infants were frequently observed touching their mothers' bodies when awake (.40). Opposite to the pattern found in male American infants, unhappy vocalizations were positively associated with observations of the infant with breast/bottle. Happy vocalizations were associated with looking at the caretaker (.41) and toy play (.51). However, object play was negatively associated with happy vocalizations (-.41). The more active the female Japanese infant, the more likely she engaged in object (.49) and hand (.59) play. And more frequent hand play was associated with frequency of touching mother's body (.37).

Patterns of caretaker behavior. Mothers of male American infants who were in the presence of their baby more during the observations tended to diaper their infants more frequently (.48), to feed their infants less frequently (-.44) and to look at their infants more frequently (.70). Dressing of the infant was positively associated with patting and touching (.45) and chatting to the infant (.44). Positioning of the infant was associated also with patting and touching (.65) and with looking at the infant (.54) and holding the infant (.51). Mothers who played with their male infants more frequently were observed more often looking at their sons (.60), chatting (.67) and lulling (.59) the infants. Mothers who kissed their sons more frequently also tended to look at (.60) and pat or touch (.58) them often and chat (.53) with them frequently.

Among the behaviors of mothers of female American infants, presence was positively associated with feeding (.50), a pattern opposite to that found in mothers of male American infants. These mothers who were observed more frequently in the presence of their infants also tended to lull (.51) and hold (.65) their daughters more often. Positioning of the infant was also positively associated with lulling (.74) and holding (.58) the infant. As with mothers of male infants, frequency of looking at the infant was related to frequency of playing (.59) with the infant. Again, similar to mothers of male infants, mothers of female American infants who frequently patted or touched their children also tended to kiss (.50) them more often and in turn, kissing of the infant was related to frequency of chatting (.56).

Several of the behaviors of Japanese mothers of male infants were related to frequency of feeding and frequency of patting and touching. These patterns stand in contrast to those found among the actions of American mothers of male infants in which looking at the infant was associated most often with other

behaviors. In Japanese mothers of male infants, frequency of feeding was positively related to frequency of observations of caretaker presence (.33) and the caretaker holding the infant (.33). Frequency of feeding also was negatively associated with the number of observations of the mother's positioning (-.37), playing (-.40), kissing (-.31) and chatting (-.41). Diapering the infant was also negatively related to kissing (-.30). Thus, the more often a Japanese mother engaged in attending to the biological needs of her male infant, the less often she was emotionally demonstrative. Mothers who frequently patted or touched their infants also tended to position (.63) them frequently and to play (.38), look at (.46), chat (.36), lull (.35) and hold (.46) them frequently. Japanese mothers who often played with their infants also tended to look (.52) at them more often, and to chat (.64) and lull (.29) them more frequently. Similar relationships between play and looking were found in American mothers of both male and female infants and between play and chatting in American mothers of male infants.

Japanese mothers of female infants were similar to Japanese mothers of male infants in that several relationships between both feeding and patting and others behaviors were found. However, unlike mothers of male infants, all of the correlations with frequency of feeding were positive. Thus, Japanese mothers of female infants who were observed more often feeding their daughters were also seen more often dressing (.40), patting or touching (.70), looking at (.65), chatting (.51), lulling (.57), holding (.55) and rocking (.43) their infants. Similarly, the mothers who frequently patted or touched their daughters also played (.46) with, looked at (.57), chatted (.61), lulled (.62), held (.67) and rocked (.65) them more often. The positive association of frequency of play with frequency of looking (.62), chatting (.57) and lulling (.42) found among Japanese mothers of female infants replicates the pattern of behaviors

found with mothers of male infants in both culture. In addition, among Japanese mothers of female infants, playing with the child was associated with rocking (.51). In American mothers of female infants only frequency of looking was associated with frequency of play. Japanese mothers who frequently looked at their daughters tended to chat (.67), lull (.70), hold (.70) and rock (.66) their children more often. As was found with Japanese mothers of male infants and American mothers of female infants, observations of caretaker presence were positively related to frequency of looking at (.47) the infant. In addition presence of Japanese mothers was associated with frequency of play (.51) with their female infants and frequency of holding (.39) them. An association of frequency of rocking with frequency of chatting and holding the infants was found for Japanese mothers of male infants. For Japanese mothers of female infants rocking was associated with feeding (.43), positioning (.52), patting (.65), playing (.51), looking (.66) and lulling (.47), in addition to frequency of holding (.83) the infant.

Patterns of infant-caretaker behaviors. American mothers of male infants who were awake more frequently tended to play with (.55), kiss (.52), look at (.63) and chat (.49) with their infants more often. Unhappy vocalizations of these infants were associated with the frequency of their mothers' playing (.63), kissing (.46), chatting (.69) and lulling (.73). Happy vocalizations of the male infants were also related to frequency of their mothers' playing (.73), looking (.73), chatting (.64) and lulling (.68), in addition to mere frequency of caretaker presence (.58). The number of observations of the American mother feeding her infant son was negatively associated with the number of unhappy vocalizations (-.48) emitted by the child and positively associated with the frequency of the infants' touching (.47) their mothers' bodies. The male American infant was also less likely to look at his mother

the more often she was observed lulling (-.44). For the most part, the majority of the significant correlations between the male infants' behaviors and their American mothers' behaviors occur with vocalizations.

Fewer relationships are found between the behaviors of female American infants and their mothers. Happy vocalizations of the child are positively associated with their mothers' frequency of kissing (.46), looking (.47) and patting (.47). The number of observations in which the infant was awake was related to observations of the mother feeding (.44), patting or touching (.47), playing (.44), kissing (.46) and looking at (.48) her daughter. Additionally, activities of the female infant were associated with several of their mothers' behaviors. Frequency of female infants' object play was related to frequency of observations of their mothers' patting or touching (.64) and kissing (.51). The female infants' toy play was related to their mothers' play (.46) with their infants. Mothers of more active female infants kissed (.48) their daughters more often and mothers of infants who touched them more often tended to look at (.47) their daughters more often.

Several behaviors of the Japanese mothers were systematically related to their male infants' feeding and looking at the mother. Japanese mothers were present more frequently with sons observed with the breast or bottle (.33) more often and they held these infants in their arms (.45) more often. However, Japanese mothers were less likely to play with (-.45) or chat (-.35) with male infants who were fed more frequently. The infants' looking at mother was positively associated with the mothers' patting and touching (.30), playing with (.36), looking at the infant (.43), chatting (.64), and lulling (.44). The more active the Japanese male infant, the less often his mother positioned (-.31), kissed (-.39), and held him in her arms (-.34), but the more frequently she looked at (.39) him. Japanese mothers were observed more often positioning

(.55), patting (.69), kissing (.36), chatting (.34), lulling (.30), holding (.59), and rocking (.38) those infants who touched their mothers' bodies more often. Thus, the majority of positive relationships exist between the infants' looking and making physical contact and their mothers' soothing responses.

The actions of Japanese mothers of female infants were also systematically related to observations of their daughters' with breast or bottle. The more frequently the infant was feeding, the more often the mother was observed patting or touching (.64) her daughter, looking at (.54), chatting (.43), lulling (.50), and holding the infant in her arms (.49). Mothers of infants who looked at their caretaker more often were more likely to be present with the infant (.39), to play with the child (.70), to look at (.48), and chat (.67) with their daughters. Mothers of more active infants were more often observed patting or touching (.40), looking at (.66), chatting with (.61), and holding (.39) their daughters. The infants' physical contact with their mother was associated only with the mothers' positioning (.74) and holding the infants in their arms (.42).

In summary, the patterns of infant-caretaker behaviors were quite distinctive in the two cultures. The linkage between American infants and their caretakers was primarily with the infants' vocalizations. Male infants' happy and unhappy vocalizations were associated with their mothers' chatting, playing, and talking. For female infants similar relationships existed between their happy vocalizations and their mothers' active responses. Caudill and Weinstein (1969) found comparable linkages between American infants and their caretakers. The associations between Japanese infants' behaviors and their caretakers' activities seemed to cluster around the infants' looking at the caretaker and the caretakers' attending to the physical needs of the infants. Thus, in the Japanese culture, at an early age, the importance of nonverbal cues emerges.

Discussion

Comparison of maternal and infant behavior in 1969 (Caudill and Weinstein) and 1982 revealed striking similarities between the two cultures in regard to most of the caretaker behaviors. No differences were found in caring for the infant's biological needs for nutrition, elimination, and physical comfort. Thus, there were no significant cultural differences in feeds, diapers, dresses, pats or touches, and other care.

Also, there were no significant differences in the amount of playing with the infant, kissing, looking at, chatting with, lulling or talking with the infant. These findings replicated those of Caudill and Weinstein (1969), except for chatting and lulling. They found that American mothers did significantly more chatting with their babies than the Japanese mothers, and that the Japanese mothers did significantly more lulling than the American mothers. It should be noted that the means in the present study for chatting are in the same direction as those found by Caudill and Weinstein. Even though the means for lulling in the present study are not significant, they are in the opposite direction from those found by Caudill and Weinstein, and can be more cautiously assumed to represent differences across time in that the cultures have tended to converge on this behavior. Perhaps some of this convergence may be explained by noting that among some middle-class Japanese mothers there is a trend to adopt practices used by American mothers. For example, the popularity of Dr. Benjamin Spock's book, Japanese translation, on child care attests to their seeking information concerning American child care practices. In addition, in Japan, increasingly television programs portray American customs. Itoh and Taylor (1981) investigated child-rearing expectations among Japanese and American parents of nine and ten year old children and found that the parents from both countries were generally in agreement on the value they placed on the expectations of their children.

Similarly, although of borderline significance, American babies are being held in the arms of mother more than was the case in 1969. This may be in part due to the increased interest in early parent/infant relationships.

The differences with regard to two caretaker behaviors: (1) being with or in the presence of her baby, and (2) positioning the body of the infant, replicated the findings of Caudill and Weinstein (1969). Today as in 1969 the Japanese mothers spend more time in the presence of the baby than the American mothers, and the American mothers are more active in positioning the babies. These findings may be due in part to the size of the Japanese home. In general, the Japanese home is much smaller than the American home, and the arrangement of the space within the home in Japan contributes to their being together. In Japan, rarely does the infant have a separate room.

Among the infant behaviors, the degree of similarity between the two cultures was evident. No differences were found between cultures in the time of being awake, frequency of breast or bottle, unhappy vocal behavior, happy vocal behavior, looking at the mother, activity and playing behavior. Caudill and Weinstein (1969), found significantly more playing and happy vocal behavior among the American infants than the Japanese infants. These differences in the present study are not significant, and the Japanese play behavior and happy vocal is slightly higher than the American play behavior though not significantly. Hence, what differences did exist seem to have disappeared. This finding might be interpreted as being related to the increased chatting by Japanese mothers. Significant differences were found in sucking behavior with the American babies displaying more of the behavior which replicates the Caudill and Weinstein (1969), results.

American female infants were given the breast or bottle more and did more sucking then American males. The Japanese males were higher on unhappy vocal

and total vocal behavior than the Japanese females, whereas in America the American female infants were higher on total vocal behavior than the American male infants. These differences in infant behaviors are in line with the later expectations for behavior in the two cultures. Traditionally, the Japanese family wants a male baby, and thus may value behavior (i.e., vocalization) in the male which contributes to his strong role in Japanese society. The current finding with the American infants is consistent with other studies (Goldberg and Lewis, 1969; Lewis and Freedle, 1973) which found that female American infants vocalized more to their mothers than American male infants. In the present study the greater vocalization of the American female infants could have been due in part to the greater amount of physical contact in diapering and in positioning of the baby's body. The infants total vocal behavior suggests that the caretakers differentially reinforce verbal behavior on the basis of the infant's sex.

The importance of infant vocal behaviors was also apparent in the patterns of infant-caretaker behaviors. Although the analyses of frequencies of infant and caretaker activities suggest that cultural differences are dissipating, the patterning of responses suggests that Japanese and American infant-caretaker interactions retain a distinctive character.

Considering that the observers spent only two half-days in the homes, the findings from the present study should be viewed as tentative. Also, the presence of an observer in the home may have influenced the mothers' behavior. Additionally, the presence of a Japanese observer along with the American observer in the American homes could have influenced the American mothers. The possibility of a differential observer effect is an issue in cross-cultural research. Zaslow and Ragoff (1981) stated that the impact of the observers presence may be diminished in at least two ways: (1) spending a sustained

period of time establishing rapport before carrying out observations; and (2) training native observers, whose presence will be less discrepant (though still not unobtrusive). This research meets the above, thus minimizing observer influence. On the other hand, a strength of the study is that the data were collected by native observers through direct observation in the home. The findings highlight the need for more investigations using subcultural groups within each nation and cross-cultural research with respect to the infant's early interactions with mother, father, siblings, grandparents and significant others.

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Footnotes

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Table 1

Means of Infant and Caretaker Behaviors by Culture and Sex of Infant

Variable	American			Japanese		
	Males n = 15	Females n = 15	Total n = 30	Males n = 33	Females n = 19	Total n = 52
Age of infants in days	111.3	113.3	112.3	115.0	113.4	114.4
Infant Behaviors						
Awake	514.7	491.2	502.9	555.6	467.4	523.4
Breast/Bottle	62.4	87.9	75.2	67.1	54.4	62.4
All food	75.3	84.4	79.9	69.8	60.2	66.3
Finger/Pac	94.5	164.1	129.3	104.7	72.9	93.1
Unhappy Vocal	53.4	64.6	59.0	75.1	41.5	62.8
Happy Vocal	34.9	39.7	37.3	52.2	44.5	49.3
Total Vocal	81.6	104.3	92.9	126.8	85.8	111.8
Look at Mother	57.6	55.1	56.3	70.5	51.9	63.7
Active	276.2	270.1	273.2	321.9	254.6	297.4
Plays with toy	54.7	58.2	56.4	50.7	44.1	48.3
Plays with hand	20.1	33.3	26.7	33.5	26.8	31.1
Plays with object	46.1	66.8	56.5	79.1	73.9	77.2
Total play	120.8	158.0	139.4	155.4	134.1	147.6
Touch mother	19.0	41.1	30.1	57.8	41.5	71.7
Caretaker Behaviors						
Presence of	458.1	523.4	491.1	649.8	638.9	645.8
Feed infant	72.8	91.6	82.2	65.2	60.7	63.6
Diaper	14.2	25.0	19.6	21.3	17.3	19.8
Dresses	10.7	7.3	9.0	9.4	9.8	9.5
Positions	23.7	31.2	24.5	10.5	7.5	9.4
Pats/Touches	78.9	78.2	78.6	74.4	52.1	66.2
Other care	15.7	18.1	16.9	22.5	22.3	22.5
Plays with	35.2	34.9	35.1	33.6	28.5	31.8
Kisses	4.6	7.6	6.1	4.2	2.1	3.4
Looks at	266.8	304.7	285.7	315.7	276.4	301.4
Chats	186.2	170.4	178.3	166.6	120.1	149.6
Lulls	7.9	14.6	11.2	6.7	7.5	7.9
Talks to	194.1	185.0	189.5	170.0	127.1	154.3
In arms	196.7	229.7	213.2	184.2	153.3	172.9
Rocks	69.5	44.5	57.0	55.7	33.8	47.7